

PROCEEDINGS
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THREE NEW SPECIES OF AUSTRALASIAN AEDES
(DIPTERA, CULICIDAE)¹

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Because of the importance of *Aedes pseudoscutellaris* (Theobald), and perhaps other closely related forms, in the transmission of nonperiodic filariasis, it has been necessary to devote considerable attention to determining the geographic distribution of these species. In the course of this investigation, three new species were discovered, all of which had been referred previously to other species in this group.

Aedes (*Stegomyia*) *guamensis*, new species.

Stegomyia scutellaris (Walker), Fullaway 1912, Ann. Rep. Guam Agric. Exp. Sta. for 1911, p. 33.

Aedes pseudoscutellaris (Theobald), Swezey 1942, Bul. Bernice P. Bishop Mus. 172: 199.

Aedes scutellaris pseudoscutellaris (Theobald), Knight, Bohart, and Bohart 1944 (in part), Keys to the Mosquitoes of the Australasian Region (Nat. Res. Council, Washington), p. 55.

Male.—Length about 3 mm., wing about 2.0 mm. Vertex covered with broad appressed scales with median broad V-shaped white mark and two lateral white spots. Torus with broad inner patch of white scales. Clypeus bare. Proboscis dark; palpus about length of proboscis, segments with basal white patches. Anterior pronotal lobe with many white broad appressed scales; posterior pronotum with dark narrow curved scales and a patch of white broad scales opposite anterior pronotal lobe. Scutum with median white stripe narrowing posteriorly and forked in the

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prescutellar area, with an indistinct short posterior submedian line of white scales, and a patch of white broad scales over the wing base. Scutellum with white broad appressed scales on all three lobes, a few dark appressed scales at apex of mid lobe. Pleuron with white scales arranged more or less in two parallel lines and scattered spots. Coxae with patches of white scales; inner surface of femora with broad pale longitudinal stripe interrupted subapically on hind leg; each femur with a white knee spot; tibiae with dark scales; front tarsus dark; segments I and II of mid tarsus with indistinct pale basal patches; hind tarsus with inner dark line extending its entire length, interrupting all white bands; length of white band on segment I $\frac{1}{5}$ length of segment; width of basal white band on II about $\frac{1}{4}$ length of segment; width of basal white band on segment III $\frac{1}{3}$ to $\frac{1}{2}$ length of segment; width of basal white band on segment IV $\frac{3}{5}$ to $\frac{3}{4}$ length of segment; segment V entirely white except for inner dark line. Wing with dark scales. Abdominal tergites II to VII with basal to subbasal lateral white spots; tergite VIII with lateral basal spots or a basal band; sternites II to VI mostly pale; last two sternites with apical dark bands. Genitalia with basal lobe of basistyle as in figures 5 and 6; dististyle long curved and somewhat swollen subapically.

Female.—Markings about as in male. Palpus about $\frac{1}{5}$ length of proboscis, apical segment mostly white. Tarsi as in male except segments I and II of front tarsus often also with indistinct basal patches. Sternites II to VII pale, last two sternites with apical dark bands.

Type.—Male (U. S. National Museum No. 57180), Mata, Guam, November 18, 1944 (R. G. Oakley).

Paratypes.—26 ♂♂, 19 ♀♀, various localities on Guam (R. G. Oakley, 1937-1938; A. Cruz, November 1937; D. T. Fullaway, 1911), U. S. National Museum. Many of the specimens are recorded as reared from coconut husks, caracao wallows, and a water drum.

This species differs from all other known species of the subgenus *Stegomyia* with the thoracic marking described above, in having *interrupted* white basal bands on the segments of the hind tarsus. The tarsi when viewed on the inner side appear entirely dark but when viewed from the outer side have the appearance of those of *pseudoscutellaris* and related forms. The basal lobe of the basistyle of *guamensis* resembles most closely that of *pseudoscutellaris*, but has a different shape (compare figures 2, 3, and 5, 6). Furthermore, the thickened bristles of the basal lobe in *guamensis* are less developed than those in *pseudoscutellaris*. In addition to the type series, more than 100 specimens (♂♂ and ♀♀) from Guam have been examined.

Aedes (Stegomyia) pernotatus, new species.

Aedes scutellaris hebrideus Edwards, *Daggy* 1944, *War Med.*, 5:292.

Male.—Length about 3 mm., wing about 2 mm. Vertex covered with broad appressed scales with median broad V-shaped white mark and two lateral white spots. Torus with broad inner patch of white scales. Clypeus bare. Proboscis dark with indistinct pale ventral line; palpus

slightly shorter than proboscis, segments with basal white patches. Anterior pronotal lobe with many white broad appressed scales; posterior pronotum with dark narrow curved scales and a patch of white scales opposite anterior pronotal lobe. Scutum with narrow median white stripe narrowing posteriorly and forked in the prescutellar area, with an indistinct short posterior submedian line of white scales, and a patch of broad white scales over the wing base. Scutellum with white broad appressed scales on all three lobes, a few dark appressed scales at apex of mid lobe. Pleuron with white scales arranged more or less in two white parallel lines and scattered spots. Coxae with patches of white scales; inner surface of femora with broad pale longitudinal stripe interrupted subapically on hind leg; each femur with a white knee spot; tibiae with dark scales; segments I, II, and III of front and mid tarsi with basal white patches, occasionally lacking on III; frequently such patches discernible on IV and V; white bands of segments I and II of hind tarsus $\frac{1}{4}$ to $\frac{1}{3}$ length of segment, that of I interrupted by an inner line of dark scales; segment III with basal white band covering about $\frac{1}{2}$ of segment; segment IV with basal white band covering $\frac{3}{4}$ of segment; segment V entirely white. Wing with dark scales. Abdominal tergites II to VII with basal to subbasal lateral white spots; tergite VIII with lateral basal spots or a basal band; sternites II to VIII with basal to subbasal white bands. Genitalia with basal lobe of basistyle as in figure 4; dististyle long curved and somewhat swollen subapically.

Female.—Markings about as in male. Palpus about $\frac{1}{2}$ length of proboscis, apical segment mostly white.

Type.—Male (U. S. National Museum No. 57178), Second Channel Area, Espiritu Santo, New Hebrides, August 15, 1943 (K. L. Knight).

Paratypes.—6 ♂♂, 11 ♀♀, Turtle Bay and Second Channel Area, Espiritu Santo, September, 1943 (K. L. Knight), U. S. National Museum. Many specimens are recorded as reared from tree holes and various artificial collections of water.

Most specimens of *pernotatus* can be distinguished from *pseudoscutellaris* by the presence in the former of basal white patches on segment III (sometimes also on IV and V) of the mid, or front and mid legs (usually more distinct in female). Males without these markings can be distinguished from *pseudoscutellaris* by differences in genitalia (figures 2, 3 and 4). The small percentage of females without the tarsal markings as described above are apparently morphologically indistinguishable from the Polynesian *pseudoscutellaris*. The only known species which has tarsal markings similar to those of *pernotatus* is *quasiscutellaris* which occasionally has a few pale scales basally on segment III of mid or front tarsus. However, this species has complete longitudinal bands on the abdominal tergites whereas *pernotatus* has only lateral basal patches.

The male genitalia appear to place *pernotatus* closest to *hebrideus* Edwards in that both have a few enlarged bristles on basal lobe of the basistyle. However, the basal lobes in these species are distinctly different in shape (figures 4, 7 and 8).

In addition to the type material, the following specimens have been examined: 1 ♂ and 5 ♀♀, various localities on Espiritu Santo (K. L. Knight); 2 ♂♂ and 3 ♀♀, Vila Area, Efate (K. L. Knight).

Aedes (*Stegomyia*) *quasiscutellaris*, new species.

Aedes variegatus (Doleschall), Edwards 1926, Bul. Ent. Res. 17:101; and other authors.

Aedes (*Stegomyia*) *scutellaris* (Walker), Edwards 1932, Genera Insectorum, fasc. 194: 165; and other authors.

Male.—Length about 3.0 mm., wing about 2.0 mm. Vertex covered with broad appressed scales with median broad V-shaped white mark and two lateral white spots. Torus with broad inner patch of white scales. Clypeus bare. Proboscis dark with an indistinct pale ventral line; palpus slightly shorter than proboscis, segments with basal white patches. Anterior pronotal lobe with many white broad appressed scales; posterior pronotum with dark narrow curved scales and a patch of white broad scales opposite anterior pronotal lobe. Scutum with narrow median white stripe narrowing posteriorly and forked in the prescutellar area, with an indistinct short posterior submedian line of white scales, and a patch of white broad scales over the wing base. Scutellum with white broad appressed scales on all three lobes, a few dark appressed scales at apex of mid lobe. Pleuron with white scales arranged more or less in two parallel lines and scattered spots. Coxae with patches of white scales; inner surface of femora with broad pale longitudinal stripe interrupted subapically on hind leg; each femur with a white knee spot; tibiae with dark scales; segments I and II of front and mid tarsi each with basal white patch, occasionally a few pale scales at base of III; hind tarsus with white bands of segments I and II $\frac{1}{4}$ to $\frac{1}{3}$ length of segment, that of I interrupted by an inner line of dark scales; segment III with basal white band covering about half of segment; segment IV with basal white band covering $\frac{3}{4}$ of segment; segment V entirely white. Wing with dark scales. Abdominal tergites II to VII with narrow subbasal white lines broadened and more basal laterally, those on tergites II and VII often interrupted medially; tergite VIII with a broad basal band; sternites II +o VI with basal to subbasal white patches or bands, sternite VIII with an interrupted median band. Genitalia with basal lobe of basistyle as in figure 1; dististyle long, curved and somewhat swollen subapically.

Female.—Markings about as in male. Palpus about $\frac{1}{2}$ length of proboscis, apical segment mostly white. There is a greater tendency towards interruption of the band on abdominal tergite II.

Type.—Male (U. S. National Museum No. 57179), Guadalcanal, Solomon Islands, 1944 (J. N. Belkin).

Paratypes.—34 ♂♂, 35 ♀♀ same data as type, U. S. National Museum.

Specimens from Tulagi and Gela in the Solomons belonging to this species have been described previously by Edwards (Bul. Ent. Res., 17: 101, 1926) who provisionally regarded them as representing the typical form of *Aedes variegatus* (Doleschall) which had been described from Amboina in 1858. However, *variegatus* Doleschall is a homonym and Edwards (Gen. Insec., fasc. 194: 165, 1932) referred this material to

scutellaris Walker which had been described from the Aroe Islands in 1859. Examination of a considerable number of collections from eastern New Guinea, the Solomons, and the New Hebrides leads to the conclusion that *quasiscutellaris* has a restricted distribution and does not occur on New Guinea. All mosquitoes of the *scutellaris* group from New Guinea examined by the authors are referable to *hebrideus* Edwards. Therefore, there seems to be no reason to accept Edwards' "provisional" designation of the Solomon Islands form as *scutellaris*.

In addition to the type material the following specimens have been examined: Guadalcanal, 117 ♀♀ and 101 ♂♂, collected by A. Weathersby, F. Lechner, K. L. Knight, P. W. Oman, J. N. Belkin, A. B. Gurney, J. R. Douglas; Bougainville, 26 ♂♂ and 40 ♀♀, collected by A. B. Gurney, A. Weathersby, F. Lechner, C. R. Bruck; Treasury Island (Solomons), 6 ♂♂ and 12 ♀♀, collected by J. H. Paullus.

EXPLANATION OF PLATE VI.

Basal lobes of basistyle.

Fig. 1, *quasiscutellaris* n. sp. (ventral view); Fig. 2, *pseudoscutellaris* (Theobald) (ventral view); Fig. 3, *pseudoscutellaris* (dorsal view in another specimen); Fig. 4, *pernotatus* n. sp. (ventral view); Fig. 5, *guamensis* n. sp. (ventral view); Fig. 6, *guamensis* (lateral flattened view); Fig. 7, *hebrideus* Edwards (ventral view); Fig. 8, *hebrideus* (lateral view).



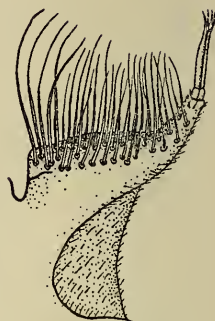
1. *quasiscutellaris*



2. *pseudoscutellaris*



3. *pseudoscutellaris*



4. *pernotatus*



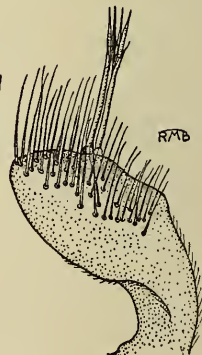
5. *quamensis*



6. *quamensis*



7. *hebrideus*



8. *hebrideus*